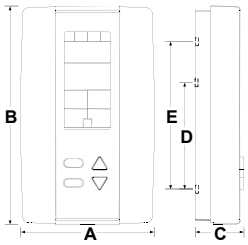
SAR IAQ Room Sensors
Specification and Installation Instructions

Models
SAR24GH
with humidity and CO_2 sensor
SAR24GV
with CO_2 and VOC sensor

SAR24GH/SAR24GV

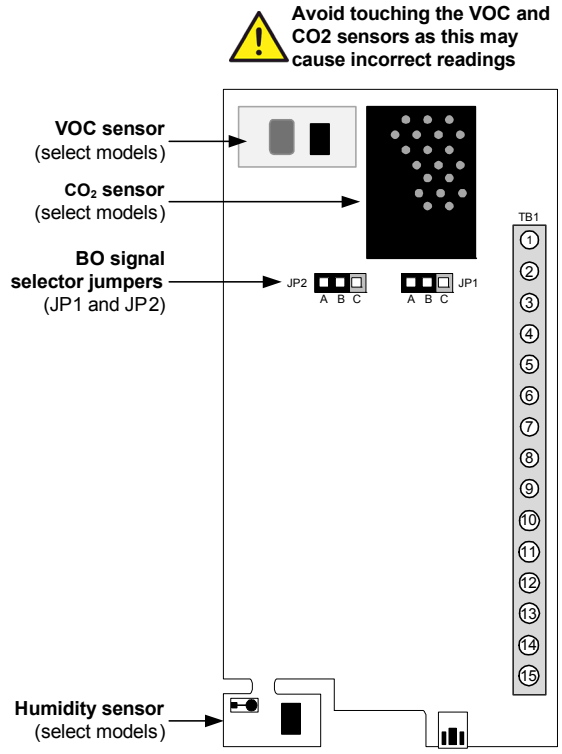
Features
- CO_2 sensor feedback output (AO1)
- CO_2 warning and alarm level outputs (BO1 and BO2)
- Humidity or VOC sensor feedback output (AO2)
- Input voltage 24Vac or 24Vdc

Technical Specifications

Description	SAR24GH/SAR24GV	
Humidity Sensor (SAR24GH)		
Sensor range	5 to 95% RH	
Display resolution	0.1% RH	
CO_2 Sensor (SAR24GH and SAR24GV)		
Operating principle	Self-calibrating, Non-Dispersive Infrared (NDIR)	
Sensor range	400 to 2000 ppm	
Accuracy	±30 ppm ±3% of reading (Accuracy is defined after minimum 3 weeks of continuous operation)	
Response time	2 minutes by 90%	
VOC Sensor (SAR24GV)		
Operating principle	Self-calibrating, Non-Dispersive Infrared (NDIR)	
Sensor range	0-1000 ppb isobutylene equivalent tVOCs	
Response time	< 5 seconds for tVOC	
Start up time	15 minutes	
Other		
Outputs	2 Binary outputs (BO1 and BO2), dry contracts 24Vac, 1A max 3A in-rush 2 Analog outputs (0 to 10Vdc)	
Electrical connection	0.8 mm^2 [18 AWG] minimum	
Operating temperature	0ºC to 50ºC [32ºF to 122ºF]	
Storage temperature	-30ºC to 50ºC [-22ºF to 122ºF]	
Relative humidity	5 to 95 % non-condensing	
Enclosure protection	IP 30 (EN 60529)	
Weight	80 g. [0.2 lb]	
Dimensions		A = 2.85” | 73mm B = 4.85” | 123mm C = 1.00” | 24mm D = 2.36” | 60mm E = 3.27” | 83mm

Wiring

We strongly recommend that all controllers be wired to a separate grounded transformer and that transformer shall service only these products. This precaution will prevent interference with, and possible damage to incompatible equipment.



Terminal	Description	Details
1	COM	(-) Common
2	24Vac/24Vdc	(+) 24Vac
3	COM for BO1 (ext 24V)	If JP1 is set to A+B
4	Binary Output 1 (BO1)	CO_2 warning level ON @ >1000ppm OFF @ <800ppm
5	COM for BO2 (ext 24V)	If JP2 is set to A+B
6	Binary Output 2 (BO2)	CO_2 alarm level ON @ >1200ppm OFF @ <1000ppm
7	COM	
8	Not Used	
9	COM	
10	Not Used	
11	Analog Output 1 (AO1)	CO_2 feedback 0 to 10Vdc = 0 to 2,000ppm
12	COM	
13	Analog Output 2 (AO2)	Humidity or VOC feedback 0 to 10Vdc = 0 to 100%RH (SAR24GH) 0 to 10Vdc = 0 to 1,000ppb (SAR24GV)
14	Not Used	
15	Not Used	

Jumpers

Jumpers			Description
JP1	BO1 Signal Selection	JP1 A B C	A&B = **External:** BO1 uses external 24 Vac at pin 3 (different than thermostat)
		JP1 A B C	B&C = **Internal:** BO1 uses internal 24 Vac (same as thermostat)
JP2	BO2 Signal Selection	JP2 A B C	A&B = **External:** BO2 uses external 24 Vac at pin 5 (different than thermostat)
		JP2 A B C	B&C = **Internal:** BO2 uses internal 24 Vac (same as thermostat)

Mounting Instructions

CAUTION: Remove power to avoid a risk of malfunction.

A. Remove the captive screw that's holding the base and the front cover of the unit together.
B. Lift the front cover of the unit to separate it from the base.
C. Pull all wires through the holes in the base.
D. Secure the base to the wall using wall anchors and screws (supplied). Make the appropriate connections.
E. Mount the control module on the base and secure using the screw.